LAB08: Image Segmentation (part1)

Objective

Upon completion of this lab, you will be able to:

1. Understand the concept of image segmentation.

2. Write a program in MATLAB to make the segmented object within image using manual and automatic global thresholding**.**

3. Write the program in MATLAB to classify the pixels in image into the following defined clusters using K‑means clustering.

Exercise

Note that you should create your own function in MATLAB as MATLAB User‑defined function. It means that you cannot call MATLAB built‑in function, which generates output in the same manner as your own function. You can use the images provided in the folder **Google Drive\EGCI486-Image Processing\Second(2015-2016)\LABs\LAB08_Part1** for your exercises.

1) Image segmentation using manual global thresholding

1.1 Write the program in MATLAB to make the segmented object within image using automatic global thresholding that is able to selecting the best value of global thresholding automatically. Take the following program name: Mymanualthre.m. Using this program on the image "coins.bmp" should give you result as shown in Figure 1.
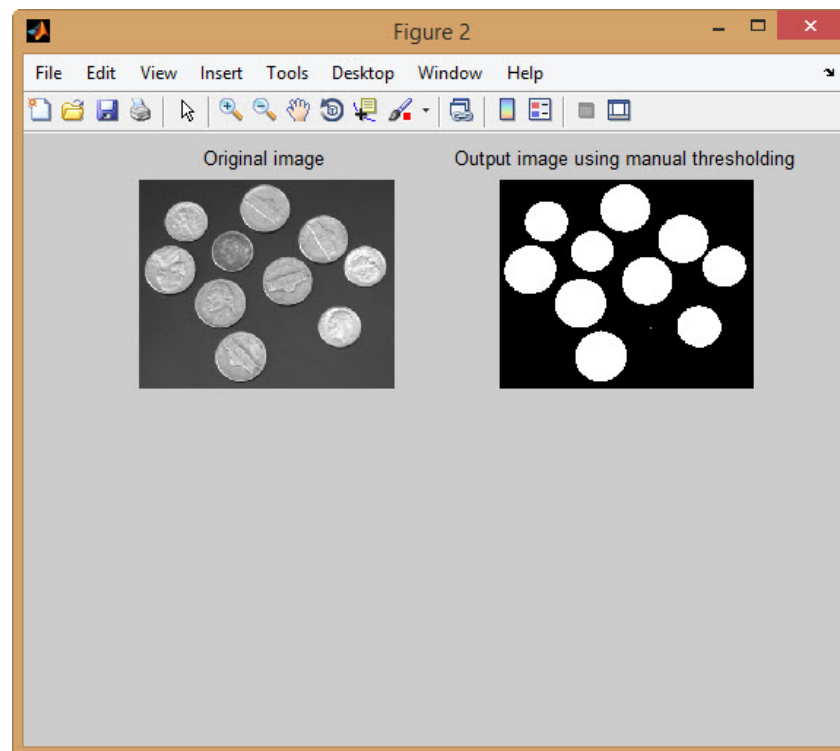
Figure 1: The result image of applying manual global thresholding on the input image.

2) Image segmentation using automatic global thresholding

    2.1 Write the program in MATLAB to make the segmented object within image using automatic global thresholding that is able to selecting the best value of global thresholding automatically. Take the following program name: Myautothre.m. When this program is used with the image "coins.bmp" result as shown in Figure 2.
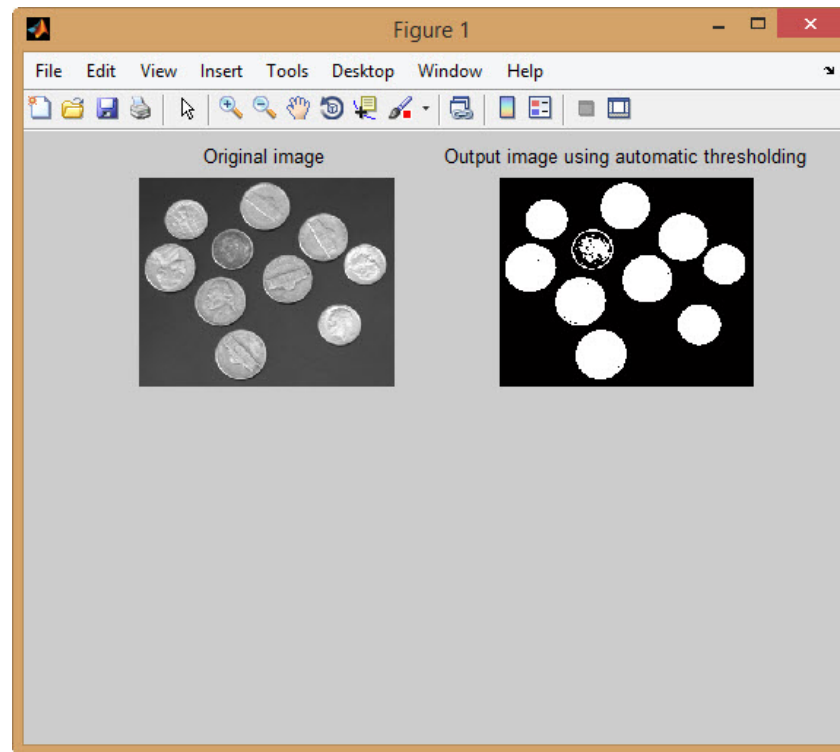
Figure 2: The result image of applying automatic global thresholding on the input image.

3) Image segmentation using K-means clustering

   3.1 Write the program in MATLAB to classify the pixels in image into the following defined clusters using K-means clustering. Take the following program name: MyKmean.m. Using this program on the image "kodim03.png" should give you result as shown in Figure 3.
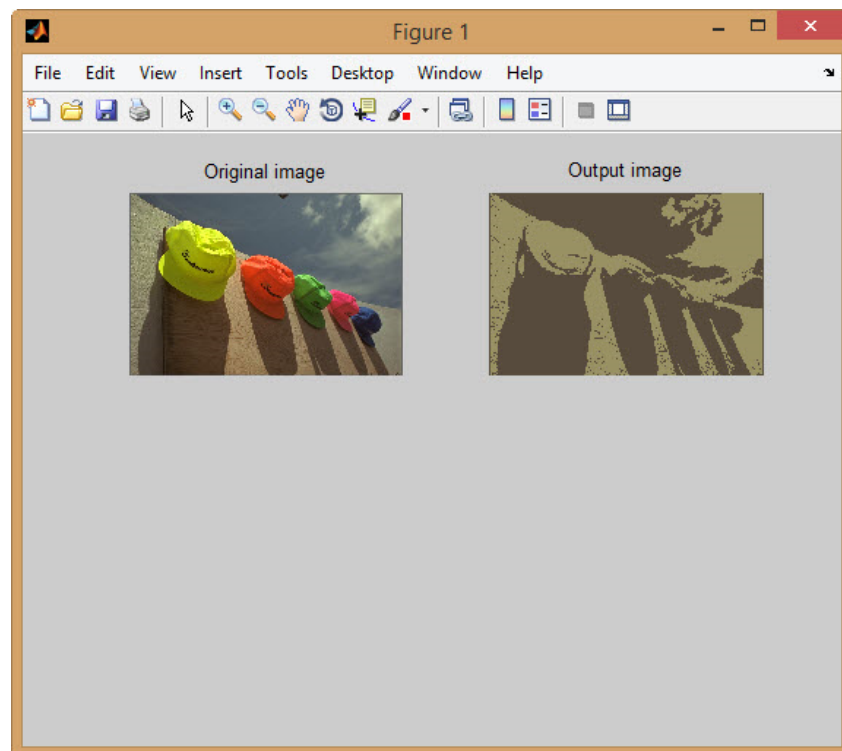
Figure 3: The result image of applying K-means clustering on input image for displaying the segmented areas into the defined clusters.